

CONFIDENTIAL

UNITED STATES GOVERNMENT

Memorandum

TO : Chief, OC-E
THRU : Chief, OC-O, [REDACTED]
FROM : [REDACTED]
SUBJECT: [REDACTED] Air Conditioning

DATE: 4 April 1977

USB 77-M- 029

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25X1A 1. Major changes to the air conditioning system at [REDACTED] were completed by contract in early 1976. Although this rehabilitation eliminated many long standing problems associated with temperature and humidity control, the design was based on projected equipment load data compiled in 1974. (See Attachment A.)

25X1A 2. Since 1974 there have been major changes to the [REDACTED] operational requirements. The equipment and office layout existing in 1974 has been completely reconfigured to facilitate the constant installation of new equipment. This new equipment includes the station master clock, data line test equipment, numerous MUX systems, high speed data equipment, and most recently the equipment needed to satisfy [REDACTED]

25X1A 3. The original design criteria for the rehabilitation project included retaining major components of the existing chiller system and modifying the chilled water distribution to meet the known [REDACTED] requirements and thus eliminating other mechanical cooling systems throughout the building. The chilled water generating system at that time consisted of two Acme chillers, each with three compressors. Based on the load data available, five of the six available compressors would be required for the worst case design temperature day. This put [REDACTED] in the undesirable position of operating effectively single-thread, with one compressor available as a redundant unit, but without redundancy in chillers. Although operation of the system was acceptable at that time, the greatly expanded number of worldwide circuits based at [REDACTED] necessitates a new look at this. In addition, a rash of compressor failures and problems

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within the system in early 1976 demonstrated the serious shortcomings of the system. [REDACTED] staff technicians were required to spend a considerable portion of their time keeping the system on-line.

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4. On 18 April 1976 a [REDACTED] failure (unrelated to air-conditioning problems) occurred and this, coupled with the compressor problems, triggered a request to purchase and install a third chiller unit to provide chiller redundancy as quickly as possible. This was accomplished in the summer of 1976 (see Attachment B), when the [REDACTED] office took the necessary steps to rapidly purchase and install a nominal rated 90 ton self-contained York chiller unit, with multiple compressors, to insure on-line availability and operation during summer months, thus relieving the immediate problem of chiller redundancy. Also, the chilled water piping was reconfigured to permit isolation of any of the three chillers for preventive maintenance. Further, the Honeywell control board was modified to operate the electronically controlled York unit as well as the pneumatically controlled Acme units.

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5. At its best, the modified Honeywell control system is only minimally satisfactory. It is emphasized that installation on the new chiller was an interim measure to provide additional chiller capacity and redundancy, in a short time frame, to stabilize [REDACTED] operations for the 1976 summer season. The time frame allowed did not permit total design development for continuous type operation and, further, [REDACTED] load changes were still being made.

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6. With the major changes that have taken place in the continuously changing/increasing equipment load, the interim chiller installation, the complex electronic/pneumatic hybrid control system, and an alarm system which has not been expanded to meet the present requirements, the total system has become unnecessarily complex and places an undue burden on the [REDACTED] maintenance men. At their present staffing level the air-conditioning technicians can only provide limited preventive maintenance on the system.

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25X1A 7. We request that OC-E program for a complete A&E study of [REDACTED] air-conditioning posture which, hopefully, will lead to recommendations for system improvements; the scope of which should include the requirement to provide a highly reliable system, to reduce trouble shooting time, to improve the alarm system, to improve the overall efficiency of the system - including use of outside air - and provide the highest degree of reliability to [REDACTED].

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8. This subject is one which we believe requires immediate attention and, at the convenience of your staff, we would like to meet with OC-E [REDACTED] and OL representatives to plan a suitable course of action.

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Attachment:

- A. OCE-M74-448 dated 18 Sept.'74
- B. OCW-M76-045 dated 21 May 1976

Distribution:

- Orig - Addressee w/att.
- 1 - Chief, [REDACTED] OC-O w/att.

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